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GLOBAL GROWTH: CAN PRODUCTIVITY SAVE THE DAY IN AN AGING WORLD?

JANUARY 2015

EXECUTIVE SUMMARY

MCKINSEY GLOBAL INSTITUTE

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MGI research combines the disciplines of economics and management, employing the analytical tools of economics with the insights of business leaders. Our "micro-to-macro" methodology examines microeconomic industry trends to better understand the broad macroeconomic forces affecting business strategy and public policy. MGI's in-depth reports have covered more than 20 countries and 30 industries. Current research focuses on six themes: productivity and growth, natural resources, labor markets, the evolution of global financial markets, the economic impact of technology and innovation, and urbanization. Recent reports have assessed global flows; the economies of Brazil, Mexico, and Nigeria; China's digital transformation; India's path from poverty to empowerment; affordable housing; and the economics of tackling obesity.

MGI is led by three McKinsey & Company directors: Richard Dobbs, James Manyika, and Jonathan Woetzel. Michael Chui, Susan Lund, and Jaana Remes serve as MGI partners. Project teams are led by the MGI partners and a group of senior fellows, and include consultants from McKinsey & Company's offices around the world. These teams draw on McKinsey & Company's global network of partners and industry and management experts. In addition, leading economists, including Nobel laureates, act as research advisers.

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GLOBAL GROWTH: CAN PRODUCTIVITY SAVE THE DAY IN AN AGING WORLD?

JANUARY 2015

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IN BRIEF

GLOBAL GROWTH: CAN PRODUCTIVITY SAVE THE DAY IN AN AGING WORLD?

What are the prospects for growth in the decades ahead? What will it take to get global growth going? These are contentious questions that MGI has attempted to answer in a new report focused on the G19 (the G20 minus the European Union) and Nigeria, which generate 80 percent of global GDP. The main findings include:

- GDP growth was exceptionally brisk over the past 50 years, fueled by rapid growth in the number of workers and in their productivity. Now the first of these is weakening, and even reversing in some countries. Employment growth of 1.7 percent between 1964 and 2014 is set to drop to just 0.3 percent a year. Peak employment is likely to occur within 50 years.
- The onus is therefore on productivity to drive long-term GDP growth. Even if productivity were to grow at the (rapid) 1.8 percent annual rate of the past 50 years, the rate of GDP growth would decline by 40 percent over the next 50—slower than in the past five years of recovery from recession. The global economy expanded sixfold in the 50 years after 1964 but would grow only threefold between 2014 and 2064, making it more difficult to meet social and debt obligations. To compensate fully for slower employment growth, productivity growth would need to be 80 percent faster, at 3.3 percent a year.
- The declining prime-working-age population share implies a 19 percent decrease in per capita income growth over the next 50 years. The waning of demographic tailwinds is expected to affect both developed and emerging economies. In Australia, Canada, Saudi Arabia, Brazil, and Mexico, per capita GDP could fall by more than 30 percent at historical productivity-growth rates. Globally, the standard of living would rise 2.3 times in the next 50 years from 2.8 times over the previous 50. To sustain past per capita income growth, historical productivity growth would need to accelerate by 22 percent.
- Five sector case studies—agriculture, food processing, automotive, retail, and health care—suggest that annual productivity growth to 2025 in the G19 and Nigeria could be as high as 4 percent, more than needed to counteract demographic trends. About three-quarters of the potential comes from the broader adoption of existing best practices—"catch-up" productivity improvements. The remaining one-quarter—counting only what we can foresee—comes from technological, operational, and business innovations that go beyond today's best practices and "push the frontier" of the world's GDP potential.
- Ten enablers could lift global GDP growth closer to its potential—although this will be extremely challenging—by creating transparency and competition, incentivizing innovation, mobilizing labor, and further integrating the world economy.
- We need a new, frank conversation about the tough trade-offs that will be required. We need more attention on resource productivity to avoid rapid growth imposing undue damage on the environment, and on how the fruits of growth are distributed not just between nations but within them. Finally, we need to improve how we measure growth.

The global growth challenge of the next 50 years

In the past 50 years, GDP growth has been achieved equally by increasing **productivity** and labor, but this is changing

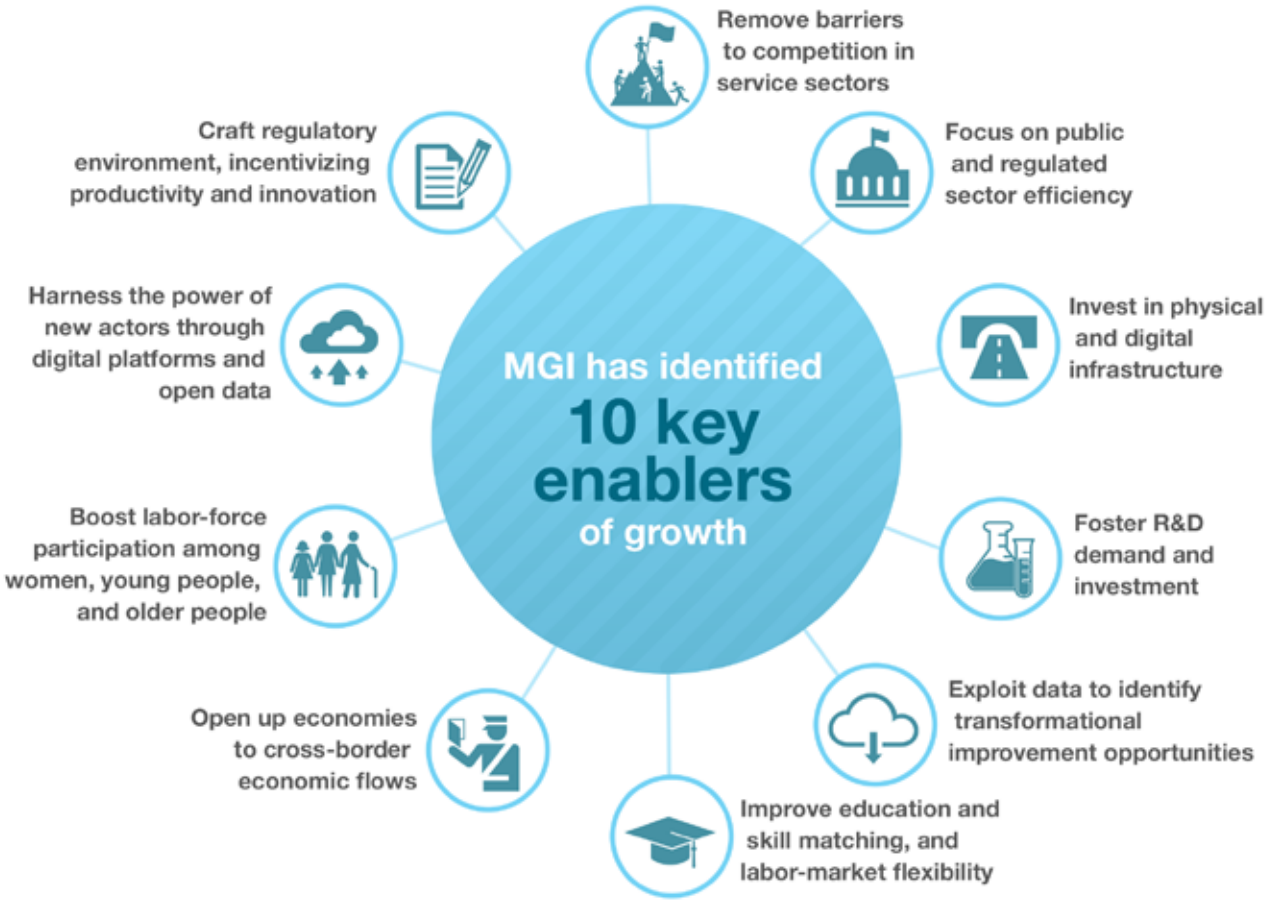
Even if productivity growth continues, labor expansion will *slow sharply,* cutting GDP growth

Five sector case studies find more than enough **productivity-acceleration scope** to counter slower labor growth

75%
from catching up to best practice

25%
from pushing the frontier

Achieving this acceleration will require an **enabling environment**


MGI has identified
10 key enablers
of growth
Remove barriers to competition in service sectors
Focus on public and regulated sector efficiency
Invest in physical and digital infrastructure
Foster R&D demand and investment
Exploit data to identify transformational improvement opportunities
Improve education and skill matching, and labor-market flexibility
Open up economies to cross-border economic flows
Boost labor-force participation among women, young people, and older people
Harness the power of new actors through digital platforms and open data
Craft regulatory environment, incentivizing productivity and innovation

Auto assembly line, Cologne, Germany
© Alamy

EXECUTIVE SUMMARY

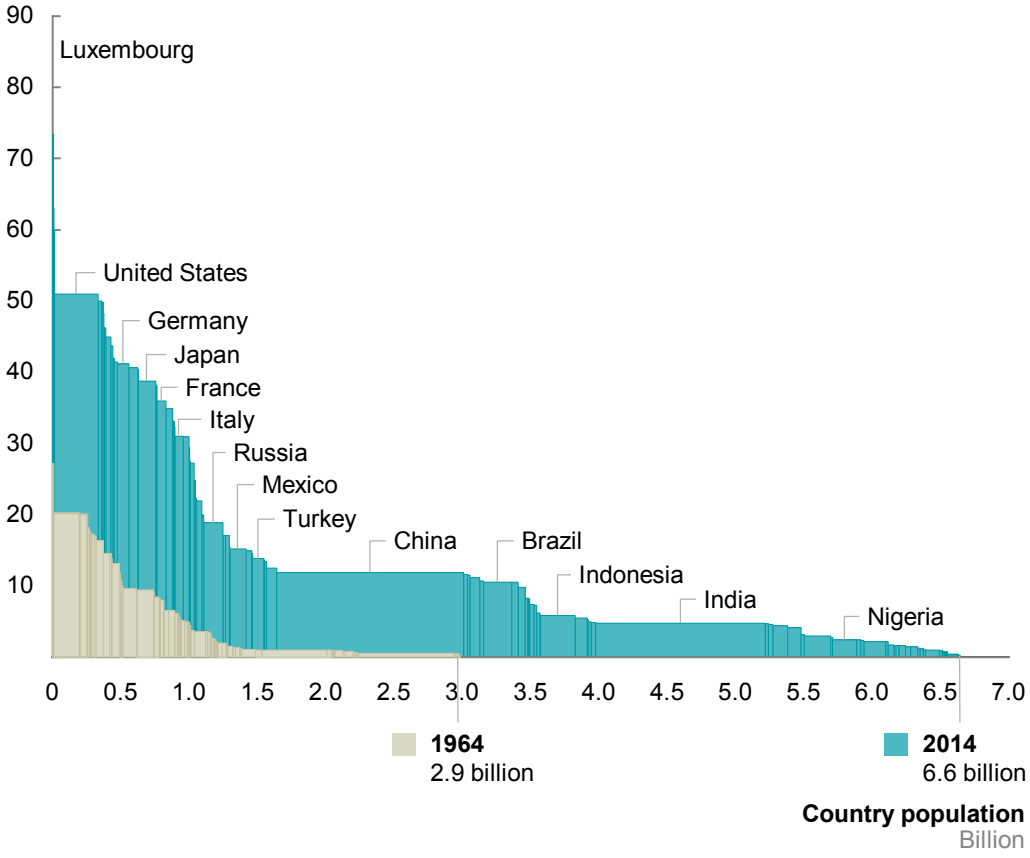
Over the past 50 years, the global economy expanded sixfold as the world's population and per capita income each grew at unprecedented speed. The global population more than doubled while average per capita income almost tripled to about $13,000 at 2012 purchasing power parity (Exhibit E1). However, there are significant doubts that this growth bonanza will continue in the long term given that the demographic tailwinds of the past half century are now waning.

6x
expansion in global GDP 1964–2014

3x
over next 50 years

Exhibit E1

Countries' population and per capita GDP have each grown strongly over the past 50 years[1]



1 Based on data for 99 countries, 1964–2014.

SOURCE: The Conference Board Total Economy Database; McKinsey Global Institute analysis

Views on the outlook for long-term growth diverge. Many people question whether growth is measured well (see Box E1, "GDP: Strengths and weaknesses"). Some even question whether growth should be a primary aspiration. However, the McKinsey Global Institute (MGI), the business and economics research arm of McKinsey & Company, has undertaken a major research effort on economic growth because we believe it matters. We do not see growth as an end in itself but as a critical enabler for meeting a much broader set of

Box E1. GDP: Strengths and weaknesses

We use changes in gross domestic product (GDP) as the metric for economic growth. Given the 50-year historical horizon of our analysis, there are no measures for assessing the overall economic evolution of a large number of countries other than GDP, the most widely available and commonly used metric.[1] We anchor our analyses on changes in aggregate GDP and look at changes in per capita GDP as a component of the total. Per capita GDP growth indicates improvements in material living standards and is itself a key economic indicator. The size of the overall economy matters, too. For companies, the market opportunities for their products and services reflect the number of consumers in each market as well as their average incomes. To assess environmental sustainability nationally and globally, incorporating the impact of the overall population is critical. More broadly, demographic trends can dramatically shape the economic, social, and political challenges and opportunities facing governments (for example, the capacity to meet social and debt obligations).

We fully acknowledge the many measurement challenges and conceptual shortcomings associated with GDP and welcome the many initiatives under way to refine and broaden the measurement of growth.[2]

[1] The one alternative could be gross national income (GNI), which allocates income from production by the nationality of the owner rather than the output of production based on the physical domicile of operations. However, for our analysis that looks at how employment and labor productivity contribute to changes in output, the geographic data available on jobs and establishments makes the latter a more suitable choice.

[2] For an overview of the evolution of GDP as a measure of economic performance and the challenges in its measurement and use, see Diane Coyle, *GDP: A brief but affectionate history*, Princeton University Press, 2014. For further discussion, see Human Development Reports published by the United Nations Development Programme since 1990 at www.hdr.undp.org/en; Millennium Development Goals reports and Beyond 2015 reports at www.un.org/millenniumgoals/reports.shtml; and the OECD's Better Life Index at www.oecdbetterlifeindex.org/. Also see Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi, *Report by the Commission on the Measurement of Economic Performance and Social Progress*, 2009; Yusuf J. Ahmad, Salah El Serafy, and Ernst Lutz, eds., *Environmental accounting for sustainable development*, World Bank, June 1989; and *Moving towards a common approach on green growth indicators*, Green Growth Knowledge Platform scoping paper, April 2013. See Chapter 6 for further discussion.

desirable goals. Growth is a way to expand economic opportunities to the many millions of people who remain vulnerable and poor. The challenges of meeting pension and other social obligations that increase as the population ages and of managing public debt are less severe in a growing economy. Forthcoming MGI research suggests that countries such as the United Kingdom and France would need to achieve long-term GDP growth that is more than 50 percent faster than historically in order to start reducing the ratio of public debt to GDP, given current fiscal balances and interest rates.[1]

The deep uncertainty about long-term growth prospects makes it difficult for decision makers in the public and private sectors to prepare for the future. This research is an attempt to clarify the potential paths ahead. The analysis draws on nearly a quarter century of MGI research on economic growth across the globe. The aim is to provide a fact base of past performance and future outcomes if current trends continue, and then to identify and estimate the size of the levers that could alter the long-term growth trajectory. This report focuses on the G19 and Nigeria, looking in particular at trends in employment—people working outside the home as employees or self-employed (including subsistence farmers)—and productivity, the two major drivers of long-term GDP growth.[2]

[1] Given that debt levels are fixed at nominal currency, what matters for debt level reduction are changes in nominal GDP levels, not real GDP that is adjusted for inflation and is the focus in the rest of the report. This means that the 50 percent acceleration requirement applies to nominal GDP growth and can be met with different real GDP growth and inflation levels. Assuming inflation remains at historical levels, real GDP would need to accelerate by 50 percent; higher inflation in turn would reduce the real GDP growth threshold. The calculation on the GDP-growth acceleration required to start deleveraging assumes fixed projected interest rates on government bonds and inflation rates. For analysis on this topic, see the forthcoming McKinsey Global Institute report on debt and deleveraging.

[2] For many countries, time-series data going back 50 years is limited for both employment components and labor productivity, defined as output per employee, by industry. For this reason, we chose to focus on 20 countries: the G19 (the G20 grouping without the European Union as a composite member) plus Nigeria. These 20 countries include a wide range of economies at different stages of their development with a major impact on global GDP and employment. Together, they account for 63 percent of the global population and 80 percent of global GDP.

Rapid GDP growth over the past 50 years was exceptional

Over the past 50 years, two factors powered exceptionally fast GDP growth: a rapidly expanding labor force and rising average productivity.

Growth in the labor force was fueled by two demographic trends. The first was brisk population growth, reflecting initially high fertility rates, falling infant-mortality rates, and lengthening life expectancy as hygiene and health-care provision advanced and expanded, and casualties of war were reduced.[3] The second was a rising share of those of working age in the population—a demographic dividend. Over time, the number of children in each family declined, and the share of people of working age—15- to 64-year-olds—in the population climbed sharply, from 58 percent in 1964 to 68 percent in 2014. Employment in the G19 and Nigeria grew at an annual rate of 1.7 percent in this period, doubling the total labor force and contributing about 48 percent of GDP growth in these economies.

Rising productivity generated the other 52 percent of GDP growth. Productivity grew at an average annual rate of 1.8 percent between 1964 and 2014. A number of factors propelled productivity growth, including a shift from low-productivity agriculture to more productive manufacturing and service-sector jobs in cities, automation and more efficient operations, and increasing integration of the world economy that led to more productive modern businesses gaining share from less productive ones. The average employee generates 2.4 times as much output today as in 1964. Although the average pace of productivity growth was brisk, there were significant differences in the rate of that growth among economies. In Western European nations and the United States, labor productivity grew by between 1.5 percent and 1.9 percent a year from 1964 to 2014 from a relatively high base. Productivity growth during this period was exceptionally strong in South Korea and Japan, rising 4.6 and 2.8 percent per annum respectively, allowing these economies to narrow their aggregate productivity gaps with Western Europe and the United States.

Productivity in developed economies today remains almost five times that of emerging economies.

Among developing economies, the variance in productivity performance has been much wider. There is no typical rate of productivity growth in these economies. China's productivity grew at an annual pace of 5.7 percent between 1964 and 2014. In contrast, Mexico and Saudi Arabia clocked less than 1 percent annual productivity growth over this period. Overall, it is striking that the absolute gap between productivity in emerging and developed economies has not narrowed. Productivity in developed economies today remains almost five times that of emerging economies. Narrowing this gap is one of the biggest opportunities for—and challenges to—long-term global growth.[4]

Peak employment will occur in most countries within 50 years

The strong demographic tailwind that powered GDP growth has come to an end and is starting to turn into a headwind in some countries. Fertility rates have declined, in many countries falling below the replacement threshold that needs to be met to keep the population steady. Population growth is expected to fall in all countries in the G19 but continue to grow rapidly in Nigeria. The boost to growth from a favorable shift in age structure has also come to an end. As the bulge of working-age people grows older, the

[3] Robert S. McNamara and James G. Blight, *Wilson's ghost: Reducing the risk of conflict, killing, and catastrophe in the 21st century*, Public Affairs, 2003.

[4] MGI has studied the reasons for sustained productivity gaps in more than 20 countries over the past 20 years. For more on this research, see www.mckinsey.com/mgi.

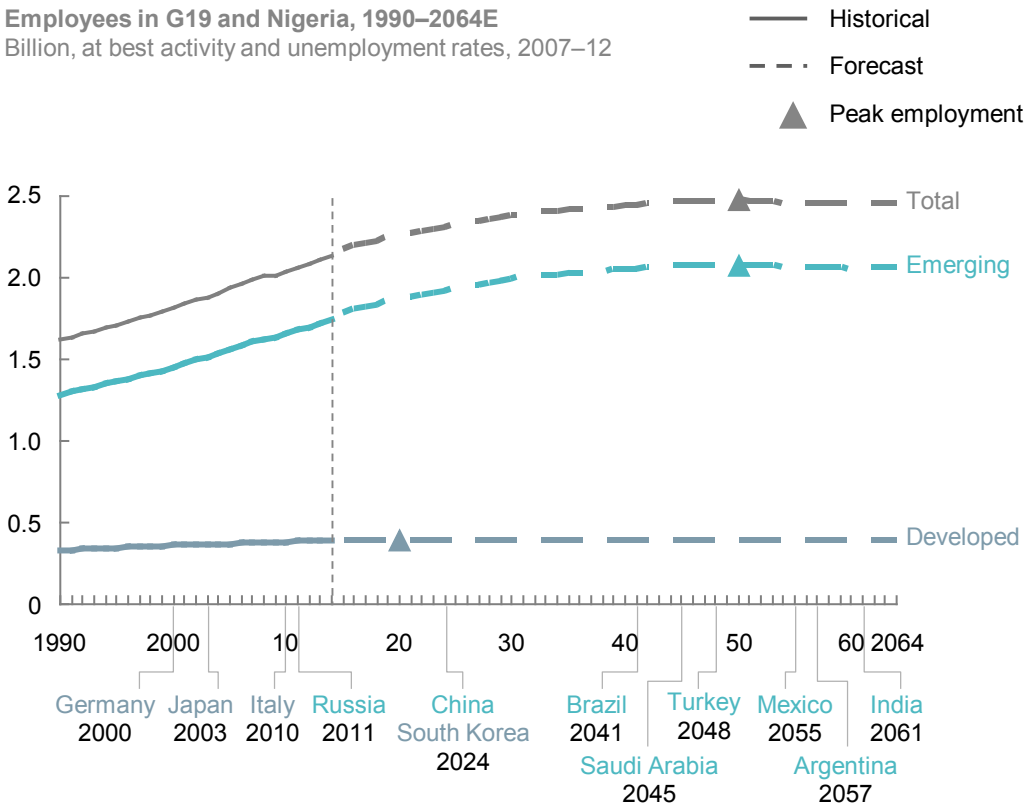
average share of the prime-working-age population in the G19 and Nigeria is expected to fall to 61 percent from 68 percent today. Only Nigeria bucks this trend.

Taking all factors into account, average employment growth in the 20 countries studied is expected to wane to 0.3 percent a year over the next 50 years, less than one-fifth of the 1.7 percent growth observed between 1964 and 2014. There is a distinct prospect that employment in the 20 countries overall could peak around 2050 and then settle into a declining path (Exhibit E2).

Exhibit E2

The global number of employees is likely to peak around 2050

Employees in G19 and Nigeria, 1990–2064E
Billion, at best activity and unemployment rates, 2007–12



SOURCE: The Conference Board Total Economy Database; United Nations Population Division; World Bank; International Labour Organisation; McKinsey Global Institute analysis

Employment prospects vary significantly. The number of employees has already peaked and started to decline in Germany, Italy, Japan, and Russia; their labor pools could shrink by up to one-third by 2064. In most other countries, employment is likely to peak within 50 years. In China and South Korea, the peak is expected as early as 2024. China and India, the countries with the largest and second-largest populations in the world, respectively, are expected to follow very different paths. India's labor pool could expand by 54 percent over the next 50 years, but China's could shrink by one-fifth. Other nations, including Indonesia, South Africa, and the United States, are likely to continue to experience rising employment, albeit at slower rates.

There is scope to use policy to boost labor-market participation among women, young people, and those aged 65-plus. We estimate that it is possible to double employment growth from 0.3 percent today to 0.6 percent in the 20 countries studied. However, achieving this doubling would require each gender and age group across countries to close

the employment gap with high performers for the group—which would be very difficult.[5] In any case, even 0.6 percent growth in employment is still only about one-third of the rate of the past 50 years, and insufficient to counter the erosion of the growth of the labor pool.

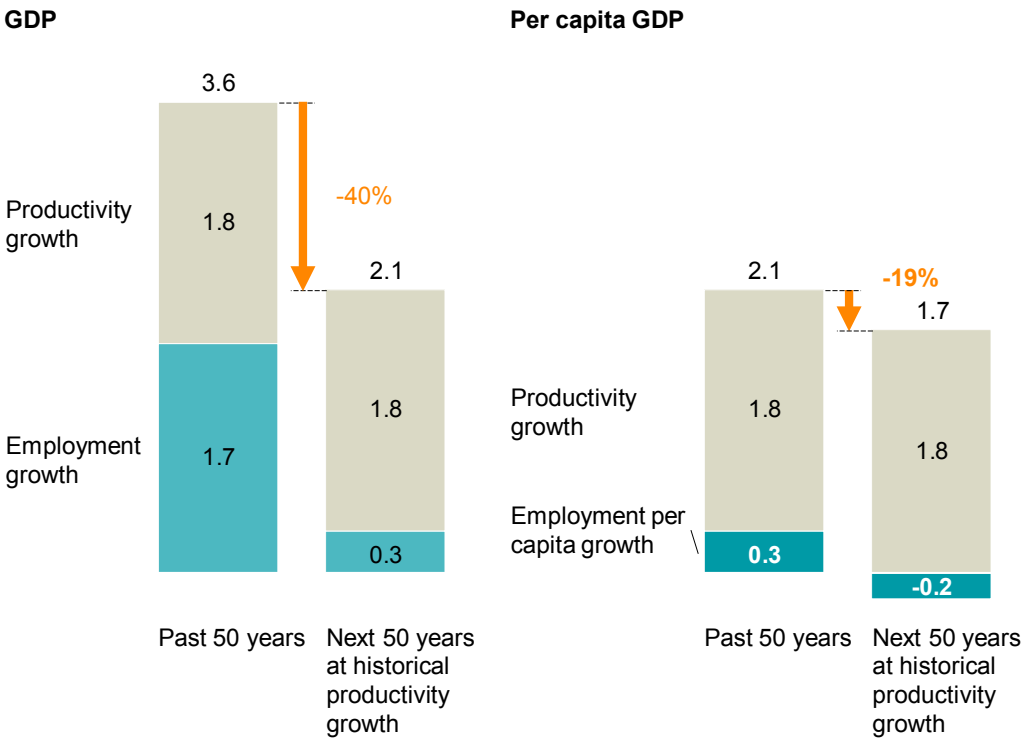
At historical productivity-growth rates, long-term GDP growth would be 40 percent slower than its rate of the past 50 years

If productivity growth continued to rise over the next 50 years at its average rate between 1964 and 2014, the rate of global GDP growth would decline by 40 percent in the G19 and Nigeria—from 3.6 percent a year to only 2.1 percent (Exhibit E3). Putting this into perspective, average GDP growth over the next five decades would be one-third lower than it was over either the past five years of recovery from the global recession or the energy-crisis decade of 1974 to 1984. Over the course of 50 years, such a slowdown in growth would add up to a significant shift in the world's growth trajectory. While the global economy expanded sixfold in the 50 years from 1964, it would grow only threefold between 2014 and 2064 (Exhibit E4).

Exhibit E3

At past rates of productivity growth, GDP growth would slow down by about 40 percent and per capita GDP growth by about 20 percent

G19 and Nigeria
Compound annual growth rate, %



NOTE: Numbers may not sum due to rounding.

SOURCE: The Conference Board Total Economy Database; United Nations Population Division; McKinsey Global Institute analysis

[5] To estimate the size of the potential to expand employment, we assume that all countries close current gaps to the employment rate of top-quintile performing nations in each demographic category. For prime-working-age women (aged 15 to 64), Norway and Canada, with a participation rate of 75 percent and unemployment at 5 percent, are the benchmarks. For young people, pre-recession United States is the benchmark, with a 55 percent participation rate and 10 percent unemployment rate. For prime-working-age men, the benchmark is 90 percent participation and, at most, 5 percent unemployment. For those aged 65-plus, the potential participation rate is set at 25 percent and unemployment rate at 10 percent. For nations that exceed these benchmarks in any of the categories, we use their current participation rates instead.

Exhibit E4

At historical productivity-growth rates, GDP and per capita GDP growth are set to slow in most G19 countries

Employment, productivity, and growth
Medium UN population scenario, best activity and unemployment rates, 2007–12; compound annual growth rate (CAGR), %; future 50 years assumes past productivity growth rates for next 50 years

Employment growth
Productivity growth
Employment per capita growth
GDP growth
Per capita GDP growth
CAGR, past 50 and future 50 years
Change, %
CAGR, past 50 and future 50 years
Change, %
Developed countries
South Korea 7.0 4.3 -39 5.8 4.3 -26
Australia 3.4 2.2 -36 2.0 1.2 -40
Japan 3.3 2.1 -36 2.8 2.6 -7
Canada 3.1 1.5 -53 1.9 0.8 -57
United States 2.9 1.9 -34 1.9 1.3 -28
France 2.4 2.0 -18 1.8 1.7 -5
United Kingdom 2.2 2.0 -10 1.8 1.6 -11
Germany 2.2 1.0 -52 1.5 1.4 -2
Italy 2.1 1.4 -36 1.7 1.5 -14
Emerging countries
China 7.5 5.3 -30 6.1 5.4 -12
Indonesia 5.3 3.7 -32 3.5 3.2 -11
India 5.1 3.8 -27 3.2 3.2 1
Saudi Arabia 5.1 1.4 -73 1.7 0.6 -67
Turkey 4.6 3.6 -23 2.7 3.3 24
Nigeria 4.5 4.9 7 1.8 2.5 39
Brazil 4.0 1.6 -60 2.1 1.4 -33
Mexico 3.7 1.3 -66 1.7 0.7 -60
South Africa 2.9 2.0 -30 0.9 1.4 51
Argentina 2.6 1.7 -37 1.3 1.3 2
Russia 1.6 0.6 -60 1.4 1.1 -20

NOTE: Numbers may not sum due to rounding.

SOURCE: The Conference Board Total Economy Database; United Nations Population Division; International Labour Organisation; McKinsey Global Institute analysis

The expected impact of waning demographic tailwinds on the global standard of living measured by per capita GDP is not as dramatic as it is on GDP growth. The expected fall in the share of the prime-working-age population age implies a 19 percent decline in the growth rate of per capita income from the rate of the past 50 years. This would mean the standard of living rising by 2.3 times over the next half century compared with an increase of 2.8 times over the previous 50 years.

Changing the long-term growth trajectory that appears to be in prospect will largely depend on the rate of productivity growth. Princeton University professor Alan Blinder commented in November 2014, "Maybe some of the copious attention now being devoted to assessing labor-market slack should be redeployed to studying productivity growth. It might be more productive."[6]

Faster productivity gains can compensate for the waning of demographic tailwinds. To do so fully, productivity growth over the next 50 years would need to be 80 percent faster than the already high rate of the past 50 years. Productivity would need to accelerate by 22 percent to compensate for the shift in demographics on per capita income. In turn, productivity growth that is below its historical rate would mean even slower GDP and per capita income growth.

4%
annual productivity growth potential

There is large potential to improve productivity if all available levers are fully deployed

MGI developed five sector case studies—agriculture, food processing, automotive, retail, and health care—to help us to understand the potential scope for accelerating productivity growth.[7] Drawing on this analysis, we find that it is possible—but extremely challenging—to boost the annual rate of productivity growth in the G19 and Nigeria to as much as 4 percent a year over the next decade. This would be more than the 80 percent acceleration required to compensate fully for waning demographic tailwinds.

However, all available means to boost productivity growth would need to be deployed. The issue, in our view, is not that the world is running out of technological potential for growth but rather how to ensure that governments and company managers have a strong incentive to pursue higher productivity by adopting proven best practices from others and by innovating. Achieving a step change in productivity growth would necessitate strenuous efforts by business owners, managers, and workers to change established ways of doing things and to adopt new approaches that improve how they operate. Efforts to improve the traditionally weak productivity performance of large and growing government and health-care sectors around the world will be particularly important.

6 Alan S. Blinder, "The unsettling mystery of productivity," *The Wall Street Journal*, November 25, 2014.

7 We used MGI's micro-to-macro approach to assess opportunities for productivity gains in our five sector case studies. The sectors we studied are large employers that collectively represent diverse industries and productivity patterns. We drew on sector data from the World Input-Output Database, dozens of MGI country and industry studies, and McKinsey's industry expertise across regions to understand patterns in productivity performance. We limit our projections to the period to 2025 rather than to 2064 because that is the period for which understanding today's starting position can help to guide informed projections.

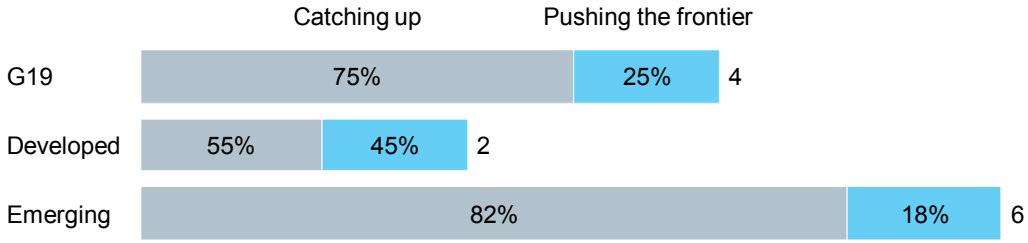
Catching up to best-practice productivity could deliver three-quarters of the opportunity

Roughly three-quarters of the total global potential for productivity growth that MGI has estimated comes from the broader adoption of existing best practices—which we can characterize as "catch-up" productivity improvements (Exhibit E5). The positive message here is that these types of opportunity are all known to us and exist somewhere in the world. Eighty percent of the overall opportunity to boost productivity in emerging economies comes from catching up. Opportunities include increasing the share of modern retail formats, increasing the scale and capacity utilization of auto assemblers, improving operational efficiency in health care, reducing waste in food processing, and shifting to a greater share of higher-value products or services.

Exhibit E5

Approximately three-quarters of the productivity potential identified comes from catching up, and the rest from pushing the frontier

Potential per annum productivity growth rate
%



SOURCE: McKinsey Global Institute analysis

In developed economies, more than half—55 percent—of the productivity gains that MGI's analysis finds are feasible could come from closing the gap between low-productivity companies and plants and those that have high productivity. There are opportunities to continue to incorporate leaner supply-chain operations throughout retail, and to improve the allocation of the time spent by nurses and doctors in hospitals and health-care centers, for example. Across countries, large differences in average productivity within the same industry indicate industry-wide opportunities for improvement. For instance, low productivity in retail and other service sectors in Japan and South Korea reflects a large share of traditional small-scale retailers. High costs in the US health-care system partly reflect the excessive use of clinically ineffective procedures. Even agriculture, automotive manufacturing, and other sectors that have historically made strong contributions to productivity growth have ample room to continue to diffuse innovations and become more efficient.[8]

[8] For additional examples, see the MGI reports *Growth and renewal in the United States: Retooling America's economic engine*, February 2011; *European growth and renewal: The path from crisis to recovery*, July 2011; *Beyond Korean style: Shaping a new growth formula*, April 2013; and *Why the Japanese economy is not growing: Micro barriers to productivity growth*, McKinsey Global Institute, July 2000. For further examples of cross-country productivity gaps in different industries based on MGI's productivity research over more than 20 years, also see James Manyika, Jaana Remes, and Jonathan Woetzel, "A productivity perspective on the future of growth," *McKinsey Quarterly*, September 2014.

Pushing the productivity frontier through innovation could deliver the remaining one-quarter of the opportunity

The remaining one-quarter of the opportunity to boost productivity growth—or about one percentage point a year—comes from technological, operational, and business innovations that go beyond today's best practices and that "push the frontier" of the world's GDP potential. In contrast to some observers, we do not expect a drying up of technological or business innovations to constrain growth. On the contrary, we see a strong innovation pipeline in developed and emerging economies in the sectors we studied.[9] We cannot account for future developments that we cannot foresee today, and it is quite possible that waves of innovation may push the frontier far more than we can anticipate on the current evidence.

In contrast to some observers, we do not expect a drying up of technological or business innovations to constrain growth.

Some opportunities require simply continuing existing industry research programs, such as agricultural research into tailoring and improving seeds and agronomical practices to raise crop yields in new geographies, and automotive industry initiatives to power cars using more efficient fuel technology. Others rely on technological innovations that could potentially transform many different industries. For example, highly efficient and intelligent robots—or bots—are already boosting efficiency in retail warehouses where they are deployed, mobile technology is increasingly being used to deliver health care in remote regions, and automobile manufacturers are installing a broader range of digital features in cars. Advanced materials such as nanolaminates—edible lipids or polysaccharide compounds—can be sprayed on food to provide protection from air or moisture and reduce food spoilage, while carbon-fiber composites can make cars and airplanes both more resilient and lighter.[10] The Internet of Things can cut time spent in production processes by detecting potential failures early, increase crop yields by measuring the moisture of fields, and cut the cost of monitoring health dramatically.[11] Such innovations are not confined to developed economies but are happening in emerging economies, too. For instance, Aravind Eye Care of India, which has become the largest eye-care facility in the world, performs cataract surgeries at one-sixth of the cost and with fewer infections than the National Health Service in the United Kingdom achieves.[12]

9 MGI has published extensively on the outlook for technology. See, for example, *Big data: The next frontier for innovation, competition, and productivity*, May 2011; *Internet matters: The Net's sweeping impact on growth, jobs, and prosperity*, May 2011; *The social economy: Unlocking value and productivity through social technologies*, July 2012; *China's e-tail revolution: Online shopping as a catalyst for growth*, March 2013; *Game changers: Five opportunities for US growth and renewal*, July 2013; *Lions go digital: The Internet's transformative potential in Africa*, November 2013; *Disruptive technologies: Advances that will transform life, business, and the global economy*, May 2013; *Global flows in a digital age: How trade, finance, people, and data connect the world economy*, April 2014; and *China's digital transformation: The Internet's impact on productivity and growth*, July 2014. Also see the discussion of the transformative power of technology in *Manufacturing the future: The next era of global growth and innovation*, McKinsey Global Institute, November 2012.

10 *Manufacturing the future: The next era of global growth and innovation*, McKinsey Global Institute, November 2012.

11 *Disruptive technologies: Advances that will transform life, business, and the global economy*, McKinsey Global Institute, May 2013.

12 "Driving down the cost of high-quality care: Lessons from the Aravind Eye Care System," *Health International*, McKinsey & Company's Health Systems & Services Practice, issue 11, 2012. Visit www.mckinsey.com/client_service/healthcare_systems_and_services/latest_thinking/health_international/archive/issue_11.

The cross-cutting effects of digitization, including big data, and combinations of these technologies could yield astounding results. Think of the impact of a combination of big data and synthetic biology. The cost of gene sequencing is falling sharply, making a huge amount of genetic data available. Scientists and companies are using these data to develop new techniques to write DNA and insert it into cells and are even designing DNA from scratch to produce desired traits—a practice known as synthetic biology.[13]

Ten enablers need to be in place to fuel long-term global growth

Having ample opportunities to improve productivity does not guarantee that they will be realized. MGI first identified some of the productivity gaps that persist today more than ten years ago. Drawing on many years of analysis of productivity and growth as well as the new case studies in this report, we detail ten key enablers that would need to be in place to boost productivity growth and thereby help to lift the world economy's long-term growth rate closer to its potential. These enablers broadly fall into four groups.

- **Enabling catch-up by creating transparency and competition.** The first group of three reflects the barriers to catching up found in our sector case studies, as well as what we have learned from past MGI productivity studies: remove barriers to competition in service sectors, focus on efficiency and performance management in public and regulated sectors, and invest in physical and digital infrastructure, especially in emerging markets.

- **Helping to push the frontier by incentivizing innovation.** The next four enablers reflect the case studies in this report and MGI's research on the economic impact of technology: craft a regulatory environment that incentivizes productivity and supports innovation, foster demand for and R&D investment in innovative products and services, exploit existing and new data to identify transformational improvement opportunities, and harness the power of new actors in the productivity landscape through digital platforms and open data.

- **Mobilizing labor to counter the waning of demographic tailwinds.** The third group of enablers draws on the demographic analysis in Chapter 2 of this report as well as MGI's body of analysis on global labor markets: put in place regulation and social support to boost labor-market participation among women, young people, and older people; and improve education and matching skills to jobs, and make labor markets more flexible.

- **Opening up economies to cross-border economic flows, from trade in goods and services to flows of people.** Being open to global economic activity allows companies and economies to benefit from competition, the flow of ideas, and better practices and personal connections. This enabler draws on our sector case studies and previous MGI analysis of global flows.[14]

Companies are crucial to seizing the full range of opportunities to boost productivity growth. Much of the scope to improve productivity can be achieved independently from government policy, whether this involves mechanization in agriculture in emerging countries or the adoption of best practices in merchandising and online retailing. Businesses need to play a full part as investors in upgrading capital and technology. They need to take risks by investing in R&D and unproven technologies and processes. They are central to efforts to mitigate the erosion of the growth of the labor pool by providing a more flexible working environment for women and older workers, and training and mentorship for young people. In an environment of potentially weaker global economic growth, and certainly evolving growth dynamics, executives need to be adaptable and informed. They need to anticipate where

[13] *Disruptive technologies: Advances that will transform life, business, and the global economy*, McKinsey Global Institute, May 2013.

[14] *Global flows in a digital age: How trade, finance, people, and data connect the world economy*, April 2014.

market opportunities are coming from, and the competitors they will meet in those markets. Above all, companies need to be competitive in a world where productivity will increasingly be the arbiter of success or failure.

In this report, we have looked at growth from a traditional economic standpoint. We have defined growth as expanding GDP and rising per capita GDP. But we acknowledge that this approach has limitations and that some big questions now being actively debated have not been addressed in any detail in this report. Some of the productivity enablers we have discussed will require making trade-offs that might be uncomfortable. Continued rapid growth will require increasing attention on productivity in resources if that growth is not to place undue strain on our environment. The good news here is that MGI has identified opportunities for being smarter about how we use our resources and therefore achieve growth that is ecologically responsible. The issue of how the fruits of growth are distributed has also become subject to intense debate in recent years. Rapid GDP growth has contributed to a significant closing of the income gap among nations but there appears to be increasing inequality within nations. While perspectives vary on potential solutions to rising inequality, the reality is that changes in average income will not be enough to increase demand if most of the gains accrue to individuals whose needs have already been met. Broad-based income gains will therefore also matter for the growth of markets for many products and services. We welcome these questions and hope that this report represents the start of a broader conversation about the nature of long-term growth and its implications for society.

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The past 50 years have been ones of extraordinary economic expansion around the world. But now one of the twin engines of growth—rapid labor-pool growth—has lost power. The world economy must forge ahead with just one remaining engine, productivity, firing at full throttle. Boosting productivity growth is now the only way to drive growth. However, the business and policy changes needed to sustain and accelerate productivity gains will undoubtedly involve tough trade-offs. We need to be clear-minded and have a frank discussion about the difficult decisions ahead. Leaders of companies will need to think even harder about every aspect of how they do business. Governments need to act on many fronts to help craft an environment that is conducive to growth. Only sweeping change—and being smarter about growth—will meet the challenge. Productivity and innovation need to be at the core of all conversations about long-term growth. Without giving them our full attention, global prosperity is in jeopardy.

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